is well recognized in the field of information processing that semantic-based processing involves a higher level of abstraction than most other characterizations of information.

Semantics, as defined by Webster, is "the study of relationships between signs and symbols and what they ***represent to their interpreters***" (Webster's II New Riverside University Dictionary, 1984). Semantic type, as defined by the Applicant in the Applicant's specification, is "the different connotative meanings that the information contents of resources can have, ***as perceived by the user***" (Applicant's page 3, lines 9-10). That is, semantics recognizes that the same words, signs, symbols, phrases, etc. can have different meaning to different people. A common problem with conventional information processing systems is the lack of ability to process information based on semantics. Conventional systems characterize and process information regardless of the particular user.

Virtually all caching systems involve a tradeoff between data access efficiency and data accuracy, based on the potential volatility of the data. Conventional caching systems characterize and process information regardless of the particular user's perception of the significance of the volatility of the information. That is, conventional caching systems are ***insensitive to the semantics*** of the characterization of information that is being cached. As noted in the Applicant's disclosure, for example, existing caching systems are configured to apply different caching strategies to data based on whether the data-type is text or image, on the assumption that image information is less volatile than text information. In such a caching system, if the image information at the source happens to change prior to the predicted "staleness" duration associated with images, an "outdated" image will be retrieved from the cache. This potential data-inaccuracy is a generally acceptable consequence of improved data retrieval response time. Also, in such a system, this tradeoff between staleness-duration and potential data-inaccuracy is independent of the significance that a particular user associates with this data.

Other conventional methods of caching are also insensitive to the semantics of the information. The referenced prior art of Rubin, for example, teaches the use of different caching strategies for different categories of information. Employee information is cached in one memory, for example, while other information is cached in another memory. This caching strategy is effected regardless of whether the user of the system is

a clerk in the Personnel Office of a company, or the CEO of the company. In the context of the Applicant's invention, the need for up-to-the-minute data regarding employee records obviously differs between the clerk and the CEO. That is, the term "employee records" has different meaning to the clerk and to the CEO. In like manner, the characterization of information as "stock prices" will have different meaning to a stock-broker who desires minute-by-minute updates, and to a person who reviews his or her stock portfolio on a weekly or monthly basis.

Of particular note, a provider of information may easily characterize the information, but the provider has no way of knowing the connotation or significance that a particular user will associate with this characterization.

As the Applicant teaches, each semantic content type is associated with a caching policy for that type. That is, the caching policy is not, per se, defined by the characterization of the information, but rather, defined by a mapping of semantic type and caching policy: "[t]he relationship between semantic content type and caching policy to be associated with the type can be determined in advance, or may be determined directly by the user, or could be based, at least partly, on user-history and profiling of user-interaction with the resources" (Applicant's page 3, lines 25-28). In a preferred embodiment, for example, if a user only accesses "stock prices" or "employee data" weekly or monthly, the caching policy will likely place the information in "static" cache, regardless of the "volatility" of the information as defined by the provider of the information, or as defined by the provider of the information processing system.

In specific response to the Examiner's comments in the Office Action of 11 October 2001, the Applicant offers the following remarks.

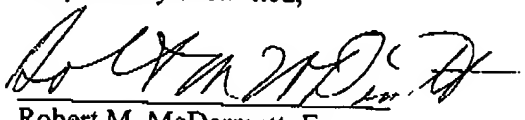
The Examiner asserts an equivalence between data-type (image vs. text) and semantic type in the rejection of the Applicant's claims in view of the admitted prior art, and then goes on to define semantic type as "a group or category of things having similar meaning". Obviously, all text does not fit into "a group or category of things having similar meaning", nor do all images. Thus, a caching system that distinguishes between text and image data cannot be considered equivalent to a caching system that

distinguishes between semantic types, based on either the Applicant's defined meaning of semantic type or the Examiner's defined meaning of semantic type.

With regard to the Examiner's rejections in view of Rubin, the Applicant has been unable to locate a reference that defines "semantics" as the Examiner has defined the term. As such, the Applicant respectfully traverses the rejection of the Applicant's claims based on this unconventional definition of the term. The Applicant explicitly defines "semantic type" in the specification, consistent with Webster's definition, and specifically claims a caching system based on semantic type. Rubin is silent with regard to semantics, and neither teaches nor suggests a semantic-based caching policy, as taught and claimed by the Applicant.

Based on the remarks above, the Applicant respectfully requests the Examiner's favorable consideration of claims 1-20 of the Applicant's invention.

Respectfully submitted,



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On 2 June 2002 By